

# IH2 AZZURRA FIRMWARE UPGRADE INSTRUCTIONS

This document describes the steps necessary to upgrade your IH2 Azzurra prototype's firmware. Follow them carefully as if you don't you could damage your prototype.

*Note: programming your device will erase the whole EEPROM, then before proceeding please open the Prensilia Demo Application and record the current PID and grasp values. Doing so, you'll be able to quickly restore the values in the EEPROM once you complete the programming procedure.*

## 1 Requirements

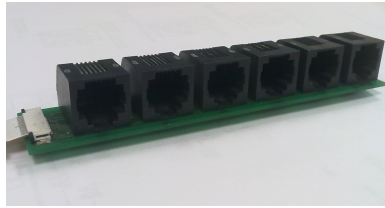
- either MPLAB<sup>®</sup> 8 IDE or MPLAB<sup>®</sup> X IDE bundle (both freely available from the [Microchip website](#)) installed<sup>1</sup>
- either the Pickit 3 (available on Farnell/RS online/Digi-Key, code 1771323/687-2750/PG164130-ND) or the ICD3 (available on Farnell/RS online/Digi-Key, code 1771323/660-1264/DV164035-ND) debugger/programmer
- either an IH2-ICD Adaptor board (Fig. 1a) or a IH2-PICKit Adaptor board (Fig. 1b). One of the adaptors is usually shipped with the prototype at purchase time

## 2 Upgrade procedures

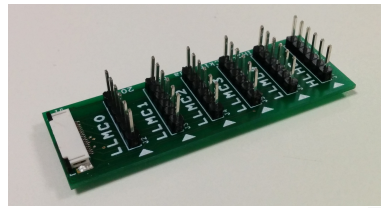
Before starting to program your prototype, please be sure to download a firmware version which is compatible with your prototype series (for example, an Azzurra series firmware *will not work* and may cause damage to your device if loaded in a Milano series prototype).

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<sup>1</sup>MPLAB<sup>®</sup> 8 IDE is available for Windows platforms only while MPLAB<sup>®</sup> X IDE is available for Windows, Linux, and Mac OS platforms



(a) The IH2-ICD Adaptor board



(b) The IH2-PICKit Adaptor board

Figure 1: Boards used to program IH2 Azzurra

## 2.1 Upgrading using MPLAB® 8 IDE

1. download the latest version of the IH2 Azzurra firmware (an `.hex` file) from the [Prensilia website support page](#).
2. open MPLAB® 8 IDE
3. connect the ICD3 or the Pickit 3 debugger/programmer to the PC and to your prototype as depicted, respectively, in Fig. 2 and Fig. 3
4. turn on your prototype
5. select `File >> Close Workspace` from the toolbar to be sure no other project or workspace is open
6. select your target device by selecting `Configure >> Select Device`. This will bring up a dialog box where you can select the PIC® MCU you are going to program. In the case you want to program the High Level Hand Controller (HLHC) you have to select the PIC18F6520. On the contrary, to program one of the Low Level Motion Controllers (LLMC) the right PIC is the PIC18F4431. After selecting the right device you will also see status leds confirming that the debugger/programmer tool you are using is supported for this device
7. open the `Configure >> Configuration Bits` window from the toolbar. At the very top of this window you will see a checkbox labeled *Configuration bits set in code*. Make sure this checkbox is set before proceeding
8. select the the ICD3 or the Pickit 3 debugger/programmer from the `Programmer >> Programming tool` menu
9. import the previously downloaded `.hex` file by selecting `File >> Import` from the toolbar. This will load the `.hex` file into MPLAB® 8 IDE memory
10. program your device by selecting `Programmer >> Program`

If everything goes well, on the log window you should see a message saying **Programming/Verify complete**.

## 2.2 Upgrading using MPLAB® X IDE

The easiest way to program your device using the MPLAB® X IDE bundle is by using the MPLAB® X IPE program. Indeed this application provides a stand-alone solution for those who want to program their devices in a production environment. The quick steps to follow are:

1. download the latest version of the firmware (an **.hex** file) from [Prensilia website support page](#).
2. open MPLAB® X IPE
3. connect the ICD3 or the Pickit 3 debugger/programmer to the PC and to your prototype as depicted, respectively, in Fig. 2 and Fig. 3
4. turn on your prototype
5. select the “Advanced 8-bit MCUs (PIC18)” family
6. in the case you want to program the High Level Hand Controller (HLHC) you have to select the PIC18F6520, and to program one of the Low Level Motion Controllers (LLMC) the right PIC is the PIC18F4431. After selecting the right device click **Apply**
7. select the ICD3 or the Pickit 3 debugger/programmer and click the **Connect** button. The programmer will then connect with the device to program
8. click on the first **Browse** button (the one related to “Source”) to import the previously downloaded **.hex** file
9. click on the **Program** button to program your prototype

If everything goes well, on the log (lower part of the window) you should see a message saying **Programming/Verify complete**.

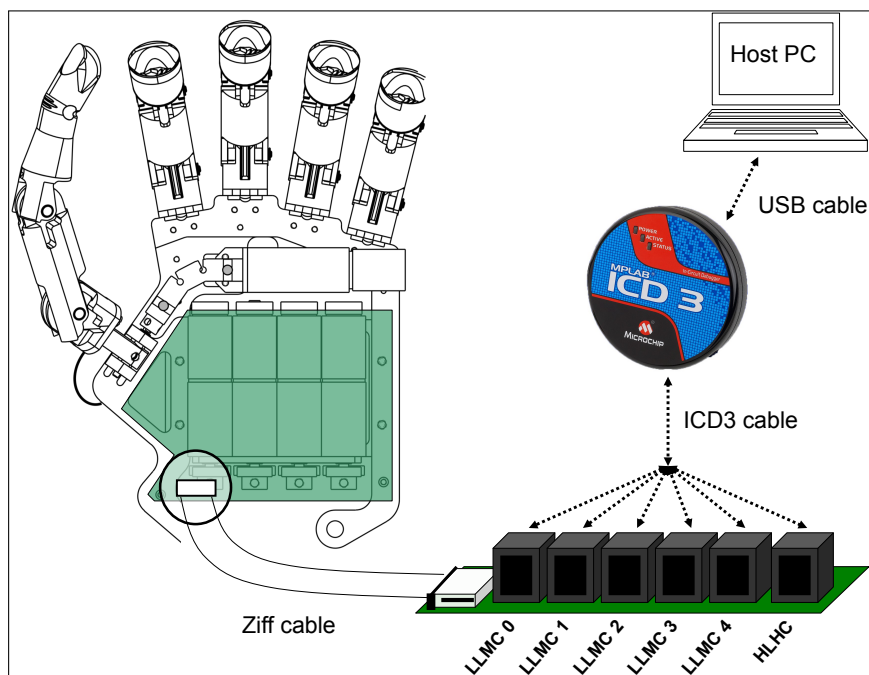


Figure 2: Programming IH2 Azzurra using an ICD3 programmer and a IH2-ICD Adaptor board

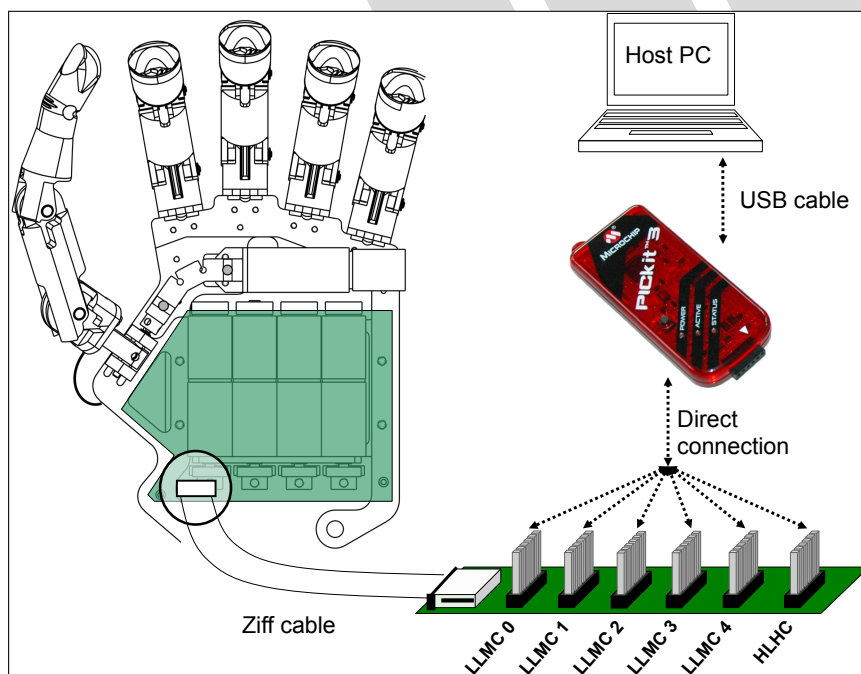



Figure 3: Programming IH2 Azzurra using a PICKit3 programmer and a IH2-PICKit Adaptor board

A large, light gray, stylized graphic of a hand with fingers spread, positioned on the right side of the page.

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